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Primary Lithium Battery Shipments Banned on Passenger Aircraft

By Muhammad Hanif, Beverly Howell, and Tom McCarley, HTIS

On December 15, 2004, the Research and Special Programs Administration (RSPA) of the Department of Transportation (DOT), working closely with the Federal Aviation Administration (FAA), issued an interim final rule imposing a **limited prohibition on offering for transportation and transportation of primary (non-rechargeable) lithium batteries and cells as cargo aboard passenger-carrying aircraft and equipment containing or packed with large primary lithium batteries. The interim final rule became effective on December 29, 2004.** This rule applies to both foreign and domestic passenger-carrying aircraft entering, leaving, or operating in the United States and to persons offering primary lithium batteries and cells for transportation as cargo on any passenger-carrying aircraft. This prohibition does not affect the carriage of lithium batteries or devices containing lithium batteries that are transported in a passenger's luggage for personal use. In addition, this rule does not apply to the shipment of equipment that contains or is packed with small primary lithium batteries or to the shipment of secondary (rechargeable) lithium batteries (e.g., lithium ion batteries).

RSPA is also amending the Hazardous Materials Regulations to require that, when offered for transport as cargo, shipments of primary lithium batteries and cells that are excepted from classification as a Class 9 (miscellaneous) hazardous material must be marked to indicate that they are forbidden for transport aboard passenger-carrying aircraft.

The HTIS Bulletin is designed to keep DOD personnel informed of technical and regulatory developments on the environmentally safe management of hazardous materials and wastes. For technical inquiries, call **DSN 695.5168** or commercial **804.279.5168** or toll free **800. 848.4847**

Battery manufacturers use lithium in batteries due to its favorable chemical properties. Lithium batteries are used to power both portable and non-portable products. The market for portable, battery-powered products is diverse and growing and encompasses a variety of electronic computers, communications, and entertainment products; a variety of cordless tools; and whole new classes of military and medical products. This diversity has resulted from a unique synergy between the products themselves, the batteries they use, and the battery charger and power management systems that charge the batteries.

Primary (non-rechargeable) lithium batteries are used in a variety of products, such as cameras, memory backup circuits, security devices, calculators, and watches. Secondary (rechargeable) lithium batteries are used in camcorders, cell phones, and other portable electronics. Under the HMR, lithium batteries and cells and equipment containing or packed with lithium batteries are regulated as Class 9, Miscellaneous Hazardous Materials.

As part of DOT's re-evaluation of the hazards posed by lithium batteries in air transportation, the FAA initiated a series of tests to assess the flammability characteristics of primary lithium batteries and concluded that the presence of a shipment of primary lithium batteries can significantly increase the severity of an in-flight cargo compartment fire. When a primary lithium battery begins to burn, the outer plastic coating of the battery easily melts and ignites, contributing to the fire's intensity. Because lithium is highly reactive and has a relatively low self-ignition temperature, once ignited, primary lithium battery fires are difficult to combat. **Thus, while Halon 1301 is effective in suppressing a fire associated with the surrounding packing material, it is not effective against the burning lithium batteries.** Halon 1301 is the only FAA certified fire suppressant system allowed in cargo compartments of passenger-carrying aircraft operating in the United States.

Since 1999, there have been several incidents involving lithium batteries in air transportation. At least four of those incidents involved primary lithium battery fires; one incident required medical treatment for two workers. All of the fires were discovered either just before or just after lithium batteries were transported on an aircraft and in a cargo compartment.

On September 29, 2004 the Air Line Pilots Association, International (ALPA) petitioned RSPA to develop packaging standards for lithium primary batteries similar to those in place for other commodities that, in the event of a fire, including a suppressed cargo fire, would result in the loss of an aircraft. The ALPA suggests that the packaging should not only be sufficient to protect the batteries from damage and short-circuiting, but also should be adequate to protect the batteries from self-ignition if exposed to the heat from a suppressed or unsuppressed cargo fire. The ALPA further suggests that the severity of the safety problem requires immediate attention and that, if the packaging criteria cannot be met, bulk shipments of lithium batteries should be prohibited on both passenger-carrying and cargo-only aircraft. The ALPA also requested that DOT perform additional testing of lithium ion batteries and lithium batteries contained in equipment.

In its petition, the ALPA references the recent RSPA rulemaking published under Docket HM-224B on May 6, 2004 (69 FR 25469), which proposed a requirement for oxygen cylinders to be overpacked in a packaging that would allow the cylinder to withstand a temperature of 400 [deg] F for 3 hours. The

ALPA states that current packaging standards for lithium batteries provide no such protection against a suppressed cargo fire.

The provisions of this interim final rule are consistent with the policies of several airlines (e.g., Northwest Airlines and KLM) that have already prohibited the transport of lithium batteries aboard their aircraft. The RSPA is also prohibiting the transportation of equipment containing or packed with large primary lithium batteries as cargo (i.e. batteries greater than 25 grams) on passenger-carrying aircraft. These prohibitions apply to both domestic flights and international flights.

Because this interim final rule addresses an immediate public safety risk, it is impracticable and contrary to the public's interest to precede it with a notice of proposed rulemaking and an opportunity for public comment. However, RSPA and the FAA plan on holding a public meeting on this rulemaking before the end of the comment period. The details of the public meeting, including time and location, will be set forth in a future Federal Register notice.

Reference: Federal Register, Volume 69, Number 240, December 15, 2004

FDA's Rule on the Establishing and Maintenance of Records to Enhance the Security of the U.S. Food Supply Under the Bioterrorism Act

Reprint submitted by Beverly Howell, Industrial Hygienist

On December 6, 2004, the U.S. Food and Drug Administration (FDA) issued final regulations on the establishment and maintenance of records to protect the U.S. human food and animal feed supply in the event of credible threats of serious adverse health consequences or death to humans or animals. The FDA also issued draft guidance to FDA staff detailing the internal procedures that the agency will follow before requesting access to records.

"Publication of this recordkeeping rule represents a milestone in U.S. food safety and security," said Secretary of Health and Human Services (HHS), Tommy G. Thompson. "There is more work to do yet, but our nation is now more prepared than ever before to protect the public against threats to the food supply."

This final regulation implements section 306 of the Bioterrorism Act, which directs the HHS Secretary to issue regulations requiring persons who manufacture, process, pack, transport, distribute, receive, hold, or import food to establish and maintain records. These records identify the immediate previous source of all food received, as well as, the immediate subsequent recipient of all food released.

"These records will be crucial for the FDA to deal effectively with food-related emergencies, such as deliberate contamination of food by terrorists," said Dr. Lester M. Crawford, Acting FDA Commissioner. "The ability to trace back will enable us to get to the source of the contamination. The records also enable the FDA to trace forward to remove adulterated food that poses a significant health threat in the food supply."

The final regulation is the fourth regulation designed to increase the safety and security of the U.S. human and animal food supply under the authority of the "Public Health Security and Bioterrorism Preparedness and Response Act of 2002" (the Bioterrorism Act).

The record retention period for human foods ranges from six months to two years, depending on the shelf life of the food.

Records for animal food, including pet food, must be retained for one year. The maximum record retention requirement for transporters of all types of food is one year.

Records must be retained at the establishment where the activities covered in the records occurred or at a reasonable accessible location. To minimize the burden on food companies affected by the final rule, companies may keep the required information in any format, paper or electronic. **All businesses, except small and very small businesses, covered by this rule must comply within 12 months from the date the rule is published in the Federal Register. Small businesses (11-499 full-time equivalent employees (FTEs)) must comply within 18 months from that date and very small businesses (10 or fewer FTEs) have to comply within 24 months from that date.**

When the FDA has a reasonable belief that an article of food is adulterated and presents a threat of serious adverse health consequences or death to humans or animals, any records or other information to which the FDA has access must be available for inspection and copying as soon as possible, not to exceed 24 hours from time of receipt of the official request. The records access authority applies both to records required to be established and maintained by the final rule, or any other records that a covered entity may keep to comply with federal, state, or local law or as a matter of business practice.

The Bioterrorism Act allows the FDA to bring a civil action in federal court to enjoin the persons who fail to comply with this rule. The FDA can also seek criminal actions in federal court to prosecute persons who fail to establish and maintain records, as required by the final rule.

The FDA has already issued three other final regulations under the Bioterrorism Act, which are in effect. They cover:

- Registration foreign and domestic food facilities;
- Prior notice of food shipments imported or offered for import into the U.S.; and
- Administrative detention, so that food products that might pose a threat of serious adverse health consequences or death may be detained.

The FDA will be holding seven public meetings in January and February 2005 to explain the requirements of the final rule and answer questions for interested parties. Registration, for the meeting, is on a first-come, first served basis. Additional information on how to register for one of the public meetings or information about all four rules designed to protect the U.S. food supply is available at: http://www.fda.gov/oc/bioterrorism/bioact.html. Consumer inquiries should be directed to 888-INFO-FDA.

Reference: FDA News, P04-109, December 6, 2004.

Homeland Security looks at Hazardous Materials Drivers

By Tom McCarley, Chemist, HTIS

The Transportation Security Administration (TSA) of the Department of Homeland Security has issued an interim final rule governing the required security threat assessment for drivers of hazardous materials shipments. Such drivers will generally need a State issued commercial driver's license with a hazardous materials endorsement. The interim final rule changes the standards relating to security threat assessments for such hazmat drivers.

In the rule of November 24, 2004 (effective immediately), TSA is

making the following changes:

- "First, this rule requires each State to declare whether it wishes to capture and submit fingerprints, applicant information, and fees itself, or alternatively choose to have TSA complete those tasks.

- Second, TSA is changing the standards to permit certain aliens who are qualified to hold a commercial drivers license to apply for a security threat assessment.

- Third, TSA is removing one felony offense, simple drug possession, from the list of disqualifying crimes, and adding unlawful purchase, receipt, transfer, shipping, transporting, import, export, and storage of a firearm or explosives to the list. TSA is reclassifying the criminal offense of arson as an interim rather than permanent disqualifier, and reclassifying the offense of murder as a permanent rather than an interim disqualifier. TSA now prohibits individuals convicted of the most serious crimes, such as treason, from applying for a waiver. TSA is increasing the response time limits for appeals and waivers.

- TSA is changing the rule concerning transferring a hazardous materials endorsement from one State to another so that drivers do not have to undergo a new background check when obtaining a license in a new State, subject to some restrictions.

- TSA is enhancing the appeal procedures for an individual who is determined to pose a security threat as a result of the intelligence-related check. The rule moves the start date of the fingerprint-based checks for transfer and renewal applicants to May 31, 2005. The rule no longer requires the States to forward all driver applications to TSA, but the States must retain the applications for one year. States that elect to collect fingerprints and driver information must be submitted electronically, with some initial assistance from TSA.

- Finally, TSA is reducing the amount of advance notice the States must provide to drivers who hold hazardous materials endorsements regarding the need for a security threat assessment upon renewal. TSA is making these changes in response to comments received from the affected parties and to clarify further the implementation of this program."

The new security assessment standards will be codified at 49 CFR 1572.

Reference: Federal Register, Vol. 69, No. 226, pages 68719-68749, November 24, 2004.

DOT Addresses Changes to Hazard Communication for Hazardous Materials in Transportation

By Tom McCarley and Abdul Khalid, HTIS

By final rule of November 4, 2004, the Department of Transportation (DOT) is adopting the following changes to the hazard communication provisions of the hazardous materials transportation regulations. Such changes arise from a Notice of Proposed Rulemaking which DOT published on June 11, 2003.

The rule of November 4, 2004 amends the hazardous materials regulations (HMR) at various citations from 49 CFR 172.301 to 172.604, 173.9, 173.29, and 173.150 as follows:

- Permitting the use of Pantone Formula, an industry guide for colors, for hazard warning labels and placards.
- Expanding the use of labels specified in the Compressed Gas Association Pamphlet C-7 on cylinders used to transport Division 2.1, 2.2, or 2.3 gases to all modes of transportation.
- Requiring a NON-ODORIZED marking on certain packages containing non-odorized liquefied petroleum gas.
- Allowing a FUMIGANT marking to be removed from a transport vehicle or freight container before the lading is unloaded, provided the vehicle or freight container has undergone sufficient aeration.
- Clarifying that beeper or other types of call-back systems do not meet the requirements in Sec. 172.604 for emergency response telephone numbers.
- Clarifying that international shipments of Class 9 materials may utilize the placarding exception for Class 9 materials while the shipment is being transported in the United States.
- Clarifying that a return shipment of a package that contains less than a reportable quantity of a Class 9 hazardous substance may be offered for transportation and transported with markings and placards in place.
- Clarifying emergency response information and training requirements for combustible liquids.

Some changes to the hazmat regulations proposed in 2003 were not adopted in the November 4, 2004 rule. These include the design of poison-by-inhalation labels and placards, the use of retro reflective materials for certain placards, marking requirement for shipments of temperature-controlled Type B organic peroxides, and the organic peroxide subsidiary FLAMMABLE LIQUID label.

Reference: Federal Register, Vol. 69, No. 213, pp 64462-64473, November 4, 2004.

RSPA Delayed HMR Effective Date

By Muhammad Hanif, Chemist, HTIS

On October 30, 2003, the Research and Special Program Administration (RSPA) published a final rule (68 FR 61905) to clarify the applicability of the Hazardous Material

Regulations (HMR) to specific operations related to Pre-transportation and transportation functions and activities related to the design, manufacturing, and qualification of packagings. On May 28, 2004, a final rule (69FR30588) delayed the effective date of the October 30, 2003 final rule until January 1, 2005. Under another final rule (69FR70902) published on December 8, 2004, the RSPA further delayed the effective date of the October 30, 2003 final rule from January 1, 2005 **until June 1, 2005.**

References: 1. HTIS Bulletin, Jan-Apr 2004 Edition, Pre-Transportation Functions for HazMat Shipping. 2. Federal Register, Vol. 68, No. 210/Thursday, October 30, 2003 (68FR61905) 3. Federal Register, Vol. 69, No. 104/Friday, May 28, 2004 (69FR30588). 4. Federal Register, Vol. 69, No. 235/Wednesday, December 8, 2004 (69FR70902).

DOT/RSPA Reorganization Statute

Reprint submitted by Beverly Howell, Industrial Hygienist

President Bush has signed into law H.R. 5163, the Norman Y. Mineta Research and Special Programs Improvement Act or Pub. L. No. 108-426. The new law establishes a new research agency within the U.S. Department of Transportation (DOT) and transfers the hazardous materials transportation regulatory function to a new regulatory agency within DOT. However, this transfer of hazardous materials regulatory authority does not involve any substantive changes to the Hazardous Material Regulations.

According to the House of Representatives Report (House Rpt. No. 108-49) accompanying the bill, the legislation is necessary because authority for research and development at DOT is spread across several agencies and administrations, including the Research and Special Programs Administration RSPA. Each agency and administration, to some extent, controls its own specific research according to its own mission, resulting in duplication, lack of coordination, inefficiencies and poor strategic planning. The RSPA research role in the Department has been criticized for being unclear, and confused with additional responsibilities unrelated to research such as the responsibilities for the Office of Pipeline Safety.

The need to clarify the role of the RSPA with respect to research and pipeline safety as well as, the need to avoid Department-wide research duplication and inefficiency, lead to the conclusion that the RSPA should be reorganized into two new Administrations.

The Act establishes a new Research and Innovative Technology Administration (RITA) within DOT. The RITA will take over all the research authority currently exercised by RSPA and includes such other duties and powers prescribed by the Secretary of Transportation that advance the research goals of the RITA. In addition, the Bureau of Transportation Statistics will be moved to the RITA.

Most important, the bill also establishes a new Pipeline and Hazardous Materials Safety Administration (PHMSA) within DOT. The legislation provides that the PHMSA Administrator shall consider the assignment and maintenance of safety in pipeline transportation and hazardous materials transportation as the highest priority of the Administration.

The PHMSA will be headed by an Administrator who is appointed by the President, with the advice and consent of the Senate. The Administrator must have professional experience in pipeline safety, hazardous materials safety, or other

transportation safety. PHMSA must also have a Deputy Administrator appointed by the Secretary and a Chief Safety Officer appointed in the competitive service by the Secretary.

In addition to any duties and powers prescribed by the Secretary, the Administrator will carry out the duties and powers related to pipeline and hazardous materials transportation and safety set forth in chapters 51, 57, 61, 601, and 603 of title 49, United States Code. These duties or powers may be transferred to another part of DOT or another government entity only if specifically provided by law. However, as stated above, this transfer of hazardous materials regulatory authority does not involve any substantive changes to the Hazardous Material Regulations, at present.

Finally, the House Committee Report strongly urged the Departments of Transportation and Homeland Security and the Departments of Transportation and Energy, separately, to execute Memoranda of Understanding governing the roles, responsibilities, and resources of the Departments in addressing pipeline and hazardous materials transportation security matters, upon establishment of the new Pipeline and Hazardous Materials Safety Administration. This coordination of functions will be increasingly important as TSA and the Department of Homeland Security play a more prominent role in regulating hazmat transportation security.

Reference: The Council on Safe Transportation of Hazardous Articles, Richard Schweitzer, COSTHA General Counsel.

Environmentally Friendly Solvent Causes Nerve Damage

By Abdul H. Khalid, Chemical Engineer, HTIS

An environmentally friendly industrial solvent can be highly neurotoxic. One such product, 1-bromopropane (1-BP or known as n-propyl bromide), is an industrial solvent that is used to replace ozone-depleting solvent. During the annual meeting of the American Neurological Association held in Toronto on October 5, 2004, Dr. Jennifer Majersik, a neurologist at the University of Utah revealed that long-term exposures to 1-BP vapor in high concentrations could cause nerve damage. The 1-BP (CAS 106-94-5) is a chemical that was introduced to replace chemicals that deplete the ozone layer. According to Dr. Majersik, several factory workers in Salt Lake City Utah showed nerve damage, including leg or foot pain with sensory loss, weakness of both legs, and walking problems. Theses workers were using spray adhesive containing 1-BP to glue together foam cushions. Some workers complained of chronic pain even after they were removed from the job and needed assistance in walking. Perhaps, poor ventilation was the main cause that resulted in the over exposure of 1-BP. Air samples taken by the enforcement agency showed concentrations of 130 part per million (ppm) one day after the company stopped using the chemical. At present, the U. S. Occupational Safety Health Administration has no permissible exposure limit (PEL) for 1-BP. The Environmental Protection Agency (EPA) has set the safe exposure level at 25 ppm.

The compound 1-BP is a highly volatile solvent that can be easily breathed in and also is likely to be absorbed through the skin. Good exhaust ventilation will aid in reducing the inhalation problem. It is the employer who should determine employee's exposures and make recommendations to protect workers from exposure. For more information on chronic

exposure to high concentrations of 1-BP, visit Medline web site at: http://www.nlm.nih.gov/medlineplus/news/fullstory_20502.html.

Reference: 1. Medline web site: http://www.nlm.nih.gov/medlineplus/news/fullstory_20502.html.
2. Preliminary Report on the Neurotoxicity of 1-Bromopropane at: http://joh.med.uoeh-u.ac.jp/pdf/E40/E40_3_14.pdf.

OECD Issues 2004 List of HPV Chemicals

By Abdul H. Khalid, Chemical Engineer, HTIS

The Organization for Economic Co-operation and Development (OECD) issued its 2004 list of High Production Volume (HPV) chemicals. HPV chemicals are manufactured in the United States (U.S) or imported into the U.S. in amounts equal to or greater than one million pounds per year. The U.S. HPV chemicals are identified through information collected under the Toxic Substances Control Act (TSCA) Inventory Update Rule (IUR). Organic chemicals that are manufactured in or imported into the U.S. in amounts equal to or exceeding 10,000 pounds per year are subject to reporting under the TSCA IUR. Reporting is required every four years.

The OECD groups consist of 30 member countries and share their commitment to democratic government and the market economy. According to the OECD, there are 400 major incidents on the average each year that are reported in the U.S and Canada involving HPV chemicals. Among them, the most common toxic gases are carbon monoxide, hydrogen sulfide, sulfur dioxide, chlorine, ammonia, cyanide, ethylene oxide, nitric oxide, nitrogen dioxide, and chlorine dioxide. These toxic gases require extra handling precautions to prevent major incidents/accidents.

HPV chemicals are identified by the member countries because some of them are potentially hazardous to the environment and/or to the health of the general public or workers. The updated 2004 OECD HPV Chemicals list contains 4,843 substances and is based on submissions of nine national inventories and that of the European Union. The next list will be compiled in 2007. These chemicals have been investigated in the OECD HPV chemical programs and can be found on the OECD at: http://cs3-hq.oecd.org/scripts/hpv/

DOD personnel interested in more information on the EPA's HPV challenge program, can contact, Mr. Oscar Hernandez, Director, Risk Assessment Division, Office of Prevention, Pesticides and Toxics, US EPA, ICC Building, 1200 Pennsylvania Avenue, N.W, Washington D.C. Phone: 202-564-0930, FAX 202, 464-7450 or e-mail at: Hernandez.oscar@epa.gov.

Reference: OECD HPV database at: http://cs3-hq.oecd.org/scripts/hpv/ 2. EPA's High Production Volume (HPV) Challenge Program at: http://www.epa.gov/opptintr/chemrtk/hpvchmlt.htm

Tips for Identifying Commercial Chemical Products

By Muhammad Hanif, Chemist, HTIS

In order to clarify the applicability of commercial chemical product (CCP) listings, HTIS published an article titled "EPA Clarifies Aspects of 'P' and 'U' Waste Listings" in the Nov-Dec 2004 edition of the HTIS bulletin. This article offers additional tips for CCP and classification of P- and U-listing waste.

The biggest problem that we encounter with P- and U-wastes is that hazardous

waste (HW) generators tend to overuse these codes. For instance, the Department of Defense (DOD) HW generators often erroneously conclude that they have a P- or U-waste. This conclusion is probably made when a Material Safety Data Sheet (MSDS) is used to identify the chemicals in the product. Typically, the generators get more puzzled and make more mistakes in identifying P- and U-wastes than any other listed HW. This is especially true when the generators review a MSDS of a product and discover that it (the MSDS) contains one or more of the chemicals on the P- or U-list. They just rely on the MSDS and assume that their waste is P- or U- waste. Another typical scenario that leads to overuse of the P- and U-listing is when the waste is analyzed and reported that it contains one or more of the chemicals on the P- or U-list. The generator then applies the waste codes associated with any such chemicals that it identifies and must then manage the waste according to the requirements of 40CFR260 to 265.

Facilities generating the listed wastes do not have to test their waste to determine whether it is listed, rather, facilities must determine whether the waste meets the listings description. The criteria that the EPA uses to assign listed HW are identified in 40CFR261.11, Criteria for listing hazardous waste. However, in order for the P- or U-listing to be applicable, it must simultaneously meet all THREE criteria. If the discarded product does not meet all three criteria, it would not be a listed hazardous waste. However, it could be hazardous if the discarded product exhibits any of the hazardous waste characteristics such as ignitability, corrosivity, or reactivity as defined in 40 CFR Part 261.20. The three criteria for P- or U- listing are:

1) An unused CCP must be discarded or spilled;

2) A chemical ingredient in the CCP is listed in 40CFR261.33(e) or (f); and,

3) The chemical on the "P-" or "U-" list is the sole active ingredient in the product (i.e., the chemical identified on the "P-" or "U-" list is the only chemically active component of the product, for the function of the product).

The EPA waste codes listed on P- and U- lists would not apply to chemicals that have been used for their intended purpose. In accordance with 40CFR261.33(a) through (d), a number of materials are regulated as commercial chemical products that are listed on the P- and U- lists. These materials include:

- Pure, unused chemicals having the generic name listed in the P- or U- list;
- Manufacturing chemical intermediates having these names;
- Off-specification variants of item 1 or 2 above;
- Residues of these chemicals in containers that do not fall under the scope of "RCRA-empty"; and
- Cleanup residues and debris resulting from spills of these chemicals.

The only definition of these terms emerges in the comment described in 40CFR261.33(d) that is part of the regulations. According to 40 CFR 261.33 (comment section), a commercial chemical product is a chemical substance which is manufactured or formulated for commercial or manufacturing use and consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a

manufacturing process waste. However, such materials may be Resource Conservation and Recovery Act (RCRA) regulated hazardous wastes, if they display a characteristic, or are on the F- or K- lists.

Although the comment in 40CFR261.33(d) is helpful, it also introduces several more terms that need to be explained:

- Technical grades of the chemical (may range from highly purified form to very impure form and that vary from compound to compound);
- Sole active ingredient (is the only or primary active chemical in the product); and
- Manufacturing process wastes (wastes generated during manufacturing operations where listed chemicals are being used).

The EPA has interpreted these terms either by publishing them in the Federal Registers (FR) or by memos. The memos that clarify the terms may be retrieved from the EPA's Office of Solid Waste (OSW) web site http://www.epa.gov/rcraonline or by contacting the RCRA hotline at "1-800-424-9346. Some of the above terms shall be discussed in future editions of the HTIS bulletin.

References: 1. Title 40, code of Federal regulations, paragraph 33 (40CFR261.33), July 1, 2003. 2. HTIS bulletin Nov-Dec 2004 edition, "EPA Clarifies Aspects of 'P' and 'U' Wastes listing." 3. 54 FR 31335, July 28, 1989.

EPA Removes Six Chemicals from Regulated Air Pollutants

By Abdul H. Khalid and Tom McCarley, HTIS

On November 18, 2004, the U.S. Environmental Protection Agency (EPA) removed six chemicals from the lists of regulated pollutants known as hazardous air pollutants (HAPs) and the volatile organic compounds (VOCs) under the Clean Air Act (CAA).

According to the EPA, the Agency took this action to create incentives for the industry to use these solvents because they are less toxic and are of great help in decreasing the formation of ground level ozone or smog. The Agency made scientific and technical reviews of these chemicals for several years and did extensive analysis on various issues involved with these chemicals in public health and the environment. The following six chemicals were removed or exempted from the lists of regulated pollutants:

Ethylene Glycol Monobutyl ether (EGBE): This is a solvent commonly used in making hydraulic fluids, water-based coatings for various industries and also for manufacturing metal cans. EGBE is removed from the CAA list of 188 HAPs because the **EPA decided that the outdoor exposure to the solvent may not reasonably be expected to damage human health or the environment**. **It is noted here that EGBE is delisted under this announcement but would remain as a regulated VOC and to be reported in the Toxics Release Inventory (TRI).**

Tertiary butyl acetate: The next five chemicals are from the list of smog-forming volatile organic compounds under the CAA. Tertiary butyl acetate (TBAC) is used in making pharmaceuticals, pesticides, and other chemical products. It is believed that it has a wide use as a substitute for VOCs used as solvents in paints and other coatings.

HFE-7000: Hydrofluoroether is

acceptable for use as a substitute for methyl chloroform.

HF3-7500: High performance engineered fluid- 2-trifluoromethyl-3-ethoxydodecafluorohexane.

HFC 227: HFC 227 is a clean agent fire suppressants used as a flooding agent to help protect assets in the event of a fire.

Methyl Formate: Methyl formate is a multipurpose intermediate for the production of important chemicals such as formic acid and formamide.

According to the EPA, the last four compounds are environmentally preferable substitutes for CFCs and HCFCs, which contribute to the destruction of the Earth's stratospheric ozone layer. The four VOCs above are used as refrigerants, fire suppressants, and aerosol propellants.

For additional information on this subject, the DOD environmental professionals can visit the following EPA's web sites: EPA's web site air Links at: http://www.epa.gov/airlinks/airlinks1.html and Emergency Planning and Community Right to Know Act at: http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/epcraOverview.htm

For further information on this news release, contact Cynthia Bergman, phone: 202-564-9828, e-mail at: bergman.cynthia@epa.gov or John Millett, phone: 202-564-7842, millett.john@epa.gov

Reference: U.S. EPA National New," After Extensive Analysis, EPA Removes Chemicals from Lists of Regulated Pollutants", November 18, 2004, Washington, D.C. or EPA's web page at: http://www.epa.gov/newsroom/

EPA's Phase-out and "Stop-Sale" of Outdoor Diazinon

By Abdul H. Khalid, Chemical Engineer, HTIS

In a press advisory of September 30, 2004, the U.S. Environmental Protection Agency (USEPA) reminded pesticide retailers of diazinon to "Stop-Sale" after **December 31, 2004.**

The USEPA and diazinon manufacturers have an agreement to phase-out and eliminate all residential uses of the insecticide diazinon for all outdoor home, lawn and garden products by the end of 2004. According to this agreement, it is unlawful to sell diazinon outdoor non-agricultural use products in the United States after **December 31, 2004**.

Consumers will be allowed to continue to use diazinon products that were purchased before the phaseout date, but those users must follow **all label directions and precautions**.

Diazinon registrants (manufacturers) are offering a "buy back" program to assist with removing these products from the market and preventing further sale. They will repurchase any unopened, unused outdoor residential products from retailers or formulators. Retailers should make all possible efforts to sell their diazinon products back to the manufacturers by **March 31, 2005.**

For disposal, the consumers should contact their state or local hazardous waste disposal program coordinators or local solid waste collection service for information on proper disposal. Consumers are advised not to dispose of pesticides in sinks, toilets, storm drains, or any body of water. More information on diazinon is available at:

- Diazinon: Phase Out of all Residential Uses of the Insecticide: http://www.epa.gov/pesticides/factsheets/chemicals/diazinon-factsheet.htm
- EPA & Diazinon at: http://www.epa.gov/

pesticides/op/diazinon.htm.

- EPA Pesticide Storage & Disposal at: http://www.epa.gov/pesticides/regulating/storage.htm.

For more information on this press release, DOD interested personnel can contact Enesta P. Jones, phone: 202-564-7873 or e-mail at: jones.enesta@epa.gov Reference: http://www.epa.gov/pesticides/op/diazinon.htm.

EPA Studies Aircraft Drinking Water

By Tom McCarley, Chemist, HTIS

On September 20, 2004, the Environmental Protection Agency (EPA) issued a press release announcing the results of its study of non-bottled drinking water onboard airliners. Links to the test results are available at: http://www.epa.gov/safewater/airlinewater/ .

During August and September 2004, the EPA randomly tested the drinking water on 158 passenger aircrafts and found that 12.6 percent did not meet EPA standards. Both domestic and international flights were included in the study where a main issue is potentially disease causing coliform bacteria. Water on 20 aircraft tested positive for total coliform bacteria and two of those were positive for pathogenic E.coli.

The EPA is working on guidance for aircraft that will call for better monitoring and procedures for flushing and disinfection of the bulk water systems used for the galley and lavatory system. The existing 12 page 1986 guidance is available at: http://www.epa.gov/safewater/wsg/wsg_29.pdf

While the EPA has not made a statement that the drinking water aboard aircrafts may be unsafe, they do urge caution and point out that 90% of aircrafts in service within the U.S. have the capability of being used internationally where water may be supplied that does not meet U.S. standards. The referenced web site shows the airports used for obtaining samples and the results.

References: 1. EPA Press Release, September 20, 2004, “EPA Makes Passenger Aircraft Water Testing Information Available. 2. Aircraft drinking water test data available - http://www.epa.gov/safewater/airlinewater/.

EPA Clarifies Rule on Allowable Lead and Copper in Drinking Water

By Abdul H. Khalid, Chemical Engineer, HTIS

On November 23, 2004, the U.S. Environmental Protection Agency (EPA) issued guidance and compliance requirements for the States on how to collect and manage the lead and copper samples under the Lead and Copper Rule.

Sampling for lead and copper are conducted to fulfill regulatory requirements that control lead in the drinking water. The EPA issued the Lead and Copper Rule that minimize lead and copper in drinking water in June 1991. The main idea of this rule is to reduce water corrosivity. Lead and copper enter drinking water via plumbing materials and the exposure to lead and copper has the potential to cause stomach distress and may lead to brain damage.

According to Ben Grumbles, Acting Assistant Administrator for Water, this guidance is the direct result of working with national drinking water partners to provide clarity on critical elements in implementing the EPA’s regulations that help safeguard public drinking water. Some

further guidance or some targeted changes are expected by next year. The key elements of this guidance are:

- Managing sampling programs,
- What states should do with samples that are taken outside of a specific compliance time frame,
- What states should do if the minimum numbers of samples are not collected, and
- What is a proper sample and how utilities can avoid sampling problems.

For more information on the "Lead and Copper Rule" and the EPA's national review of implementation, DOD interested personnel can visit EPA's Web site at: http://www.epa.gov/leadcopperrule. For further information on this news release, contact Cathy Milbourn, phone: 202-564-4355 or e-mail at: milbourn.cathy@epa.gov.

Reference: U.S. EPA National New," EPA Clarifies Compliance Sampling Requirements of the Lead and Copper Rule", Washington, D.C. November 23, 2003 or visit EPA's web page at: http://www.epa.gov/newsroom/

EPA's Short Course on Environmental Management Systems

By Tom McCarley, Chemist, HTIS

The Defense Logistics Agency (DLA), like a number of facilities, both governmental and commercial, are studying better ways of doing business and protecting the environment and are finding that the two goals can be compatible. The Environmental Management Systems (EMS) offer both tangible and intangible benefits to installations in developing practices for incorporating environmental compliance and practices with pollution prevention as an integral part of the overall business practices at the installation. The EPA has developed a "short course" on EMS' that will aid the viewer in understanding what an EMS is and how the EPA views such systems. The course consists of several modules and nearly 200 web-based slides that can be viewed on the web in some 30-60 minutes at http://www.epa.gov/epaoswer/hazwaste/permit/ems/ems-101/ems101.htm .

The modules are:

- Introduction
- What is an EMS?
- EPA's Perspective on EMS
- Benefits and Examples of EMS

The course uses a hypothetical company manufacturing the proverbial widget and is presented as a dialogue between company representatives, the EPA, State Environmental Agency representative, and a member of a local environmental group.

As a requirement of section 201 of Executive Order 13148, "Greening of Government Through Leadership in Environmental Management.", all federal agencies are required to implement an EMS at their qualifying facilities by the end of 2005. "Qualifying facility" is based on facility size, complexity, and the environmental aspects of facility operations. The full text of EO 13148 can be found at: http://ceq.eh.doe.gov/nepa/regs/eos/eo13148.html. Our Agency, DLA, formally signed its environmental management system policy on July 6, 2004. A copy of the DLA Memorandum is available at: http://www.ofee.gov/ems/training/dla.pdf

References: 1. EPA's Short Course on Environmental Management Systems (EMS) at : http://www.epa.gov/epaoswer/hazwaste/permit/ems/ems-101/ems101.htm. 2. Presentation on EMS' at the Joint Services Environmental Management Conference, San Antonio, TX, August 2004.

CAL-EPA and DOD Finalize Prioritizing Procedure for Perchlorate Sampling

By Abdul H. Khalid, Chemical Engineer, HTIS

On September 29, 2004, the California Environmental Protection Agency (CAL-EPA) and the Department of Defense (DOD) announced a final procedure for prioritizing perchlorate sampling efforts at DOD facilities in the state of California.

According to the press release, this procedure document provides guidance to California and DOD officials on the steps that each party should take to identify and prioritize areas on military sites where perchlorate has likely been released in close proximity to drinking water sources. **This is the first of its kind agreement in the country that has been developed by the DOD and a state's EPA**. The Assistant Deputy Under Secretary of Defense for Environment, Safety, and Occupational health, Alex Beehler, describes this protocol or procedure as a crucial step to address perchlorate concerns in the State of California and a model for interagency partnership with other states.

This procedure enables the officials of California to assist the DOD in prioritizing the investigation of suspected sites and its resources that have the greatest impact to the public (**immediate threats to California's drinking water supplies**). If perchlorate releases are discovered, the DOD intends to fully characterize and respond to the problems under its existing environmental response programs. The new protocol is not supposed to affect any on going environmental restoration activities that DOD has already started to address perchlorate problem.

Perchlorate and its salts occur in nature and also as synthetic products. Perchlorate contamination is found in groundwater, surface water, and soil. They have been used as oxidizers in solid propellant for rockets, missiles, and fireworks, flares, fertilizer, automobile airbags, and pharmaceuticals. Its application for national defense and space exploration is well known. Perchlorate contamination has been found in groundwater in more than 20 states and also in drinking water sources of California. It has an impact on human health because of its interference with iodide uptake into the thyroid gland.

The California Department of Health Services (CAL-DHS) started working on the status of perchlorate "Maximum Contaminant Limit (MCL)" in drinking water because there is no current drinking water standard for perchlorate that has been adopted. CAL-DHS is determined to use some action level to protect consumer. Efforts are under way to adopt a public health goal of six (6) parts per billion as MCL. The U.S. Environmental Protection Agency (USEPA) is working with California on monitoring perchlorate occurrence in public water system. California's State Water Resources Control Board (CAL-SWRCB) and California Department of Toxic Substances Control (CAL-DTSC) have information on perchlorate, which include statewide summaries.

For further information on perchlorate sampling prioritization protocol, DOD personnel can call Michele St. Martin, CAL-EPA, at

916-324-9670 or DOD, Office of the Assistant Secretary of Defense (Public Affairs) at 703-428-0711. This press release is available online at: (1) http://www.calepa.ca.gov/PressRoom/Releases/2004/September29.pdf and (2) http://www.defense.gov/releases/2004/nr20041001-1343.html.

For additional information on perchlorate and its effect visit the CAL-EPA website at: http://www.dtsc.ca.gov and http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=4604.

Reference: 1CAL-EPA Press Release, September 29, 2004 at: http://www.calepa.ca.gov/PressRoom/Releases/2004/September29.pdf. 2. DOD News Release, October 1, 2004 at: http://www.defense.gov/releases/2004/nr20041001-1343.html. 3. EPA Groundwater & Drinking water at: http://www.epa.gov/safewater/ccl/perchlorate/perchlorate.html

NIOSH Respirator Selection Logic 2004

Submitted by Beverly Howell, Industrial Hygienist

The purpose of Respirator Selection Logic (RSL) is to provide guidance to respirator program administrators on respirator selection that incorporates the changes necessitated by the revisions to the respirator use and certification regulations and changes in the National Institute for Occupational Safety and Health (NIOSH) policy. This RSL is not intended to be used for selection of respirators for protection against infectious agents or for chemical, biological, radiological or nuclear (CBRN) agents of terrorism. While respirators can provide appropriate protection against these agents, the information necessary to use the selection logic is generally not available for infectious disease or bioterrorism agents (e.g., exposure limits, airborne concentration). Similarly, CBRN terrorism events may involve chemicals that can quickly degrade respirator materials or have extremely low toxic levels that are difficult to measure.

In 1987, NIOSH published the NIOSH Respirator Decision Logic (RDL). Since then the Occupational Safety and Health Administration (OSHA) has promulgated a revision to their respirator use regulation (29CFR1910.134 published on January 8, 1998), and NIOSH has promulgated the revised respirator certification standard (42CFR84 on June 8, 1995). In addition, NIOSH has revised its carcinogen policy to recommend the complete range of respirators as determined by this respirator selection logic for those carcinogens with quantitative recommended exposure limits (RELs). Thus, respirators can be consistently recommended regardless of whether a substance is a carcinogen or not.

OSHA recently proposed a rule to establish assigned protection factors (APFs) for various classes of respirators (68FR34036 published on June 6, 2003). When the OSHA standard on APFs is finalized NIOSH intends to consider revisions to this RSL. NIOSH will also modify the certification program to assure that NIOSH certified respirators will be capable of providing the level of protection determined in the OSHA APF rulemaking. NIOSH also intends to periodically update the RSL so that it reflects current OSHA requirements and NIOSH policy.

This document is available at http://www.cdc.gov/niosh/docs/2005-100/default.html

Reference: Reprint from Centers for Disease Control (CDC) Website.

NIOSH Looking at Nanotechnology from the Safety and Health Perspective

By Tom McCarley, Chemist, HTIS

Nanotechnology is one of the most intense areas of scientific and engineering research, with the promise of faster acting medicines, smaller and faster computers, "smarter" sensors and sensor-based clothing for our troops. The nanoscale approaches molecular sizing and nanoparticles are those particles where at least one dimension is less than 100 billionths of a meter in size (100 nanometers). We first reported about the great promise nanotechnology holds for our military services in the July-August 2001 HTIS Bulletin (http://www.dscr.dla.mil/htis/julaug01.htm). Three years later, we are reporting a different face of nanotechnology to you.

Unfortunately, nanotechnology has another side to the sword. Particles small enough to work technological wonders can also get into the environment and our bodies (easily respirable eg.). See "Concerns Growing over Health Effects of Nanoparticles" in the July-August 2004 HTIS Bulletin (http://www.dscr.dla.mil/htis/jul-aug04.pdf).

Safety and Health concerns with nanoparticles are now receiving increased attention from government agencies such as the National Institute for Occupational Safety and Health (NIOSH) which has launched a web page devoted to this topic at: http://www.cdc.gov/niosh/topics/nanotech/. Information found at website includes a background and references into the health effects of nanotechnology and current government and academic research into the health effects and safety concerns of such ultrafine particles. Readers working with nanoparticles or who have an interest in the "other face" of nanotechnology are urged to peruse the NIOSH information.

Reference: National Institute for Occupational Safety and Health (NIOSH) – Safety and health Topic: Nanotechnology – http://www.cdc.gov/niosh/topics/nanotech/

IARC Determines that Formaldehyde is a Human Carcinogen

By Tom McCarley, Chemist, HTIS

One of the world's organizations that classify substances as cancer-causing (or carcinogenic) has announced that the common substance, formaldehyde is a human carcinogen. The International Agency for Research on Cancer (IARC) announced in its June 15, 2004, Press Release number 153, that now there is enough evidence to classify formaldehyde as cancer-causing in humans. The IARC is part of the World Health Organization (WHO). Formaldehyde is the simplest of a class of compounds known as aldehydes and has the formula CH2O and Chemical Abstracts number [50-00-0].

The IARC Press Release states how commonly used the substance is in coatings and plastics and how we can be exposed from common building materials and new carpets, vehicle exhaust, cooking vapors, paints and coatings, and tobacco smoke.

An international team of scientists from ten countries has determined that formaldehyde can cause a rare cancer called nasopharyngeal cancer. Research into links with other forms of cancer continues.

Reference: IARC Press Release 153 - http://www.iarc.fr/pageroot/PRELEASES/pr153a.html.

DOD Green Procurement Program Strategy Published

By Abdul Khalid and Tom McCarley, HTIS

Department of Defense (DOD) personnel responsible for purchasing environmentally preferable products and services ("green procurement") should be aware that the Department of Defense has published its Green Procurement Strategy as part of its Green Procurement Program (GPP). The strategy is currently available as a Microsoft Word document on the website of the Defense Procurement and Acquisition Policy at http://www.acq.osd.mil/dpap/Docs/policy/greenprocurement/GPP%20Strategy%2009082004.doc . .

The Strategy Document contains sections on:

- When to consider Green Procurement and where to find such products.
- DOD's Green Procurement Program.
- Roles and Responsibilities.
- Where to get training on Green Procurement.
- Additional Guidance – a handy compendium of links to other references including the applicable law (Resource Conservation and Recovery Act – RCRA) and a number of Executive Orders.
- Links to RCRA Reporting Requirements
- Definitions
- DOD Green Procurement Facility Questionnaire
- Green procurement metrics

Environmentally preferable purchasing is a requirement of RCRA and several executive orders. From the introduction to the strategy, the "purpose of the GPP is to enhance and sustain mission readiness through cost effective acquisition that achieves compliance and reduces resource consumption and solid and hazardous waste generation". The GPP program applies to acquisitions from major weapons systems down to individual unit supply requisitions.

Reference: Department of Defense Green Procurement Strategy, released September 2004 at: http://www.acq.osd.mil/dpap/Docs/policy/greenprocurement/GPP%20Strategy%2009082004.doc.

Joint Service Solvent Substitution Database on the Horizon

By Fred Tramontin and Tom McCarley, HTIS

A major DOD joint service effort is under way to focus the user attention on alternative cleaners and other environmental products to those that have gone through a systematic screening and testing process and validated for a particular process. The Joint Service Pollution Prevention http://www.jgpp.com working group on solvent substitution is utilizing a methodology which will ensure that solvents chosen for a particular application have been screened, not only from an environmental, safety and health perspective, but from a material compatibility, ease of use, and suitability for the mission criterion as well. The Solvent Substitution Database will be available at: https://enviro.nfesc.navy.mil/nets/SolventDefault.cfm. Interested database users can either sign on as a guest or

formally register. The database purpose is stated as follows:

"The Joint Service Solvent Substitution Tracking Web Site is a comprehensive site designed to provide information on completed, ongoing, and proposed solvent substitution efforts throughout the DOD. The intent of the web site is to provide solvent substitution information on DOD processes and solvents to efficiently leverage data and prevent the duplication of efforts"

Major processes include aircraft, ship, and facility (including vehicle) maintenance operations. Working group membership is from Army, Navy, Marine Corps, Air Force, DLA, and NASA.

Users can either select the solvent list or the process list. As the database starts to become populated and utilized by the military services, one would hope that installations will have already approved cleaner and other solvent substitutes for their unique processes and would begin to submit that information to the web site. In this way, the work already done can serve to benefit the greater DOD community and save taxpayer money by avoiding expensive duplication of efforts.

References: 1. Presentations at the 9th Joint Service Environmental Management Conference, San Antonio, August 19, 2004. 2. https://enviro.nfesc.navy.mil/nets/SolventDefault.cfm.

On The Web

Affirmative Procurement Course Online: The Air Force Center for Environmental Excellence (AFCEE) at Brooks City Base, Texas has a number of useful online courses available for the DOD military, civilian, or contractor personnel.

An introduction to the whole process of Affirmative Procurement (aka "Buying Green") is available via an online short course through the Web University at https://webu.brooks.af.mil/webu/secure/onlinecourse.asp (tm)

CDC's Wonder: The Center for Disease Control and Prevention (CDC)'s Wonder web site provides a wide-range of data online for an epidemiologic study or research. It is developed by CDC and is an integrated information and communication system for public health. The site is available to public health professionals and the public at: http://wonder.cdc.gov/. (ahk)

Haz-Map Occupational Health Database: The National Library of Medicine has a new web site devoted to safety and health information on chemical and biological agents to which different occupations are exposed. Haz-Map is accessed at: http://hazmap.nlm.nih.gov . and can be searched by: Hazardous Agent, Occupational Diseases, and High Risk Jobs by types or alphabetically. (ahk)

Federal Electronics Challenge Website: The Federal government has a clearinghouse with tips and tools for the management of electronics waste at: http://www.federalelectronicschallenge.net

Management tools run from acquisition and procurement and operation and management to those looking at end-of-life management of electronics. (tm)

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